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ABSTRACT

The purpose of this study was to assess the influence of Piagetian developmental theory on educational practice in kindergartens throughout southern Illinois. Data were collected through a questionnaire which sought information on teacher characteristics, the classroom setting, the teacher's curriculum approach and types of activities used in each classroom, and the teacher's knowledge of Piaget's theory. Twenty-three kindergarten teachers responded to the questionnaire. Tables indicate subjects' teaching experience, number of children in classes, types of curriculum materials used, time alloted for free play per day, objectives of math and reading activities, and ways children were grouped for instruction. Most teachers knew of Piaget and his theories, but their answers and descriptions of their classrooms did not indicate that they had applied his theory to their teaching. (Author/RH)

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# "An Investigation of the Impact of Piaget's Theory on Kindergarten Programs"

by

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An Investigation of the Impact of Piaget's Theory
on Kindergarten Programs

In the past ten years, early childhood educators, psychologists (both behaviorists and developmentalists), child development specialists, Head Start researchers, and many others have contributed to a growing wealth of knowledge about young children. We now know more than we have ever known about how young children grow and develop, how they learn, how they function in various settings, and how their environmental conditions affect them. We will learn more, of course, but certainly much information is now available for use by the teacher of young children, particularly the five-year-old.

During these years the developmental theory of Jean Piaget has had growing influence on the methods used in many kindergarten classrooms throughout the country. Piaget is concerned with the way in which a child perceives the world around him, his cognitive development or intellectual growth, and his language patterns in social interaction (Piaget & Inhelder, 1969).

For Piaget, intellectual growth is a developmental process involving two interactive functions between the individual and his environment. The first one involves inward integration or organization called assimilation. Assimilation occurs whenever an organism utilizes something from the environment and incorporates it into generalized and repeatable behavior termed schemata. The second function between the environment and the individual is outward adaptive coping called accommodation. Accommodation operates when the environmental circumstances demand coping which modifies existing schemata. Therefore,

environment acts upon the learner not by evoking a fixed response or a passive submission but by modifying existing schemata (Weber, 1970).

Piaget describes stages of development that allow the child to pass through intellectual growth. But before the authors explain these stages it is important to know that Piaget makes it clear that direct experiences, as well as social interaction with peers, are essential avenues for intellectual growth. Schemata develop through use, and the greater the variety of the situations to which the child must accommodate, the greater will be the foundations of logical thought. Self-regulation and self-correction are crucial; an active organism position is fundamental.

Piaget believes that the content of one's experiences changes in regular sequences of stages as related to age. Throughout the ages the mind organizes itself into three basic categories of space, time, and causality as explained by Weiner and Elkind (1972). These stages can be characterized into four age levels of development: sensory motor, preoperational child, concrete-operations, and formal operations, (Pulaski, 1971). This theory has been used primarily in two ways. In one way it has been used by the teacher to determine where the children in her classroom are in their stages of development. Using Piaget's activities with the children gives the teacher some indication of how the child deals with numeration, seriation, classification, space, and conservation. The teacher can then plan the children's activities based on this information. The second usage of Piaget's theory has been to develop cognitively oriented pre-school curriculums, kits, and materials which the teacher then uses in her daily activities with the children. Many of these materials are directly related to Piaget's experiments with children or derivatives of them.

The concepts of Open Education and the British Infant School Model have received wide-spread attention at this same time. Both of these concepts paralleled Piaget's theory in the support of children learning through "doing" and experimentation. Many authors have advocated that an open environment is the necessary way to allow for cognitive development as opposed to rote memory. Elkind says that open education is first and foremost in enhancing knowing, growing, thinking, and learning (Elkind, 1973).

Many educators feel, as does De Vries (1974), that it is not as important to teach a Piagetian Task as it is to implement his theory. A good way to learn how Piaget's theory helps one understand cognition and language development in the child is through understanding his tasks. From there it is feasible to create one's own way of directing activities. Lotto games, role playing, building objects from scraps, are all classified as being within the realm of Piaget's developmental theory (Lavetelli, 1970). Lavetelli also says that a child must touch, smell, feel, measure, experiment, play, for he learns best, as Piaget says, through his own discovery of the world around him. Hein (n.d.) in talking about Piagetian materials and open education says that from Piaget's theory comes the notion that intelligence is an active process which develops through the interaction between the child and the world around him. Piaget stresses over and over again that passive observation of the world is not enough; that for intelligence to develop, an engagement of the person with his environment is required. For teachers who have already discovered that purely abstract,

just-sitting-still-activities are not helping the child learn for himself, Piagetian based tasks will help to provide the intellectual and social growth of a five-year-old.

Sime (1973) relates the meaning of Piaget's theory to teachers. She describes the child and his environment and gives numerous activities to enhance development in the various stages of growth. She stresses that the child needs to "learn for himself about the horizontal and vertical patterns of space . . . This both aims at enlivening a few of the key points of Piaget's theories and at whetting the appetite for more." (p. 26)

Another book that has become a useful resource where the authors explain Piaget as a teacher is Thinking Goes to School (Furth & Wachs, 1974). The authors present Piaget's philosophy as a usable tool to parents and educators who are concerned about the intellectual health of children. It is a guide to helping children think as human beings. The authors start with each stage of development and display numerous games to help understand the stages. It can be used individually also. Each activity is designed to help the child deal successfully with specific academic subjects. "Schools of Thinking may well be the difference between the future success or failure of our children." (Furth & Wachs, 1974, p. vii)

## Statement of the Problem

Kindergarten teachers have such a variety of approaches to use in teaching their classes. Unfortunately, there is often a time lag between new research findings and developed techniques and their implementation in the classroom. Teachers are either unaware of these ideas, unsure of how to implement them, or choose not to use them.

The purpose of this study was to determine if this movement toward providing kindergarteners with experiences through experimentation, individualization and flexible scheduling was evident in kindergartens throughout southern Illinois. The following questions were studied:

1. What type of curriculum is used in kindergartens in southern Illinois?
2. Do the kindergartens use an open classroom approach to learning or a structured approach to learning?
3. Are kindergarten teachers in southern Illinois familiar with the philosophy of Jean Piaget?

## Selection of the Subjects

For this study southern Illinois was defined as that area South of Highway 50. It was limited to fifty randomly selected teachers in schools within a 150 mile radius stretching from Cairo to Salem. The sample was obtained from the Directory of Illinois Schools (1972-73). All of the subjects taught kindergarten.

Data was collected through a questionnaire which (1) provided background information on each respondent and the formal setting of each classroom, (2) the teacher's curriculum approach and types of activities used in each classroom, and (3) the teacher's knowledge

of Piaget's theory. The data was tallied for frequency of response and types of different descriptive answers to questions throughout the questionnaire.

## Findings

Twenty-three teachers responded to the questionnaire. The findings of the questionnaire are presented below. Table 1 shows the number of years each teacher has taught kindergarten. The range was from one year to twenty-seven years of experience. One-half the teachers clustered in the 4 to 7 years of experience range.

Table 1

Number of Years Teaching Experience at Kindergarten Level

| Years | Number of Teachers Responding |
|---|---|
| 1 | 2 |
| 2 | 0 |
| 3 | 1 |
| 4 | 2 |
| 5 | 4 |
| 6 | 4 |
| 7 | 1 |
| 12 | 2 |
| 16 | 1 |
| 27 | 1 |

Table 2 shows the number of children taught per year in a single class. The majority average 25 to 30 pupils per class.

Table 2

Average Number of Children in Each Kindergarten Class

| Class Number | Number of Teacher Responses |
|---|---|
| 18 | 1 |
| 20 | 1 |
| 22 | 1 |
| 25 | 11 |
| 30 | 6 |

When asked how many hours a day are spent for each class session, sixteen teachers stated 2 1/2 hours. Although these varied slightly, as a general rule, there is a school policy of 2 1/2 hours of time in most kindergartens.

Table 3 describes the types of curriculum areas taught in kindergarten. A large number of the teachers sampled use math and reading readiness books as well as providing science, art, and lotto games.

Table 3

Types of Curriculum Materials Implemented in Kindergarten Class

| Name of Source | Number of Teachers Using Source |
|---|---|
| Math Readiness Book | 15 |
| Reading Readiness Book | 16 |
| Science Area | 18 |
| Art Area | 19 |
| Lotto Games | 15 |
| Social Studies Curriculum | 1 |

Table 4 indicates how much free play is allowed for each day in kindergarten. For one-half of the classrooms sampled only one-half hour per day is allowed for "free play." Nearly one-third of teachers had 20 minutes or less for "free play."

Table 4

Time Allotment for Free Play Per Day

| Time | Number of Teachers |
|---|---|
| 15 minutes | 3 |
| 20 minutes | 4 |
| 1/2 hour | 12 |
| 45 minutes | 1 |
| open classroom--individual | 1 |
| choice all session | 1 |

Table 5 shows the objectives for students in the areas of math and reading for kindergarteners. Mastering skills and appreciation of language usage were indicated most often for reading readiness. Mastering skills, appreciation of number relationships were marked by a majority of the teachers for math readiness.

Table 5

Purpose of Reading Readiness and Math Readiness

| Purpose | Number of Teachers Responses |
|---|---|
| Reading Readiness | |
| Mastering skills | 13 |
| Appreciation of language usage | 15 |
| Alphabet and beginning sounds | 2 |
| Follow directions | 1 |
| Vocabulary | 3 |
| Awareness of skills | 1 |
| Math Readiness | |
| Mastering skills | 15 |
| Appreciation of number relationships | 13 |

On this question, whether or not the teacher is concerned with just mastery (rote memory) or an appreciation of the curriculum area itself is unclear. An appreciation or basic understanding of a subject allows for thinking skills and flexibility of learning.

Table 6 shows how children are grouped for instruction. Of the teachers responding, sixteen indicated that they teach the class as a whole. Eleven indicated they work with children individually. Obviously, some teachers do both, depending upon the schedule.

Table 6

Ways in Which Instruction Takes Place

| Instruction | Number of Teacher Responses |
|---|---|
| As a whole | 16 |
| Individually | 11 |
| In small groups | 7 |
| Child works on own with aid of teacher | 1 |

The teachers were then asked to state their goals in four areas of instruction: math, reading, motor development, and social development. This was an attempt to answer the question of concern for the individual or a structured, general approach to rote memory teaching. A wide variety of goals existed among the twenty-three teachers.

In response to the third section of the questionnaire, nineteen teachers indicated that they were familiar with Piaget. Four had never heard of him. In reviewing the responses of the teachers who

answered that they were familiar with Piaget, they seemed to have a good idea of what he advocates for understanding children. They did not, however, say how this knowledge was applied to their classes. Their answers were general.

## Conclusions and Discussion

Although 87 percent of the teachers in this study indicated that they know who Piaget is and something of his theories, their answers related to Piaget and the descriptions of their classrooms did not indicate that they have applied his theory to their teaching. This conclusion is supported by the fact that very little time is allowed for free play or for children to explore and work at their own pace, and that large group instruction is the major form of classroom organization.

The greatest concern seems to be for mastery of skills rather than for helping the children gain an appreciation for their environment, and for concept development. This leads to a focus on traditional curriculum areas such as math and reading rather than on social and physical skill development.

Competition and achievement focuses on the whole group rather than encouragement of achievement for self, based on each child's individual needs. Thus, it appears that although most of the teachers know of Piaget's ideas and the implications of his work for education, their practices do not show that they have incorporated his ideas or knowledge of his ideas in their classrooms.

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